

Stantec Analytical Validation Checklist**Report No. ASX25**

Project Name: Amtrak North Yard	Project Number: 213402048	
Validator: Jim Tezak	Laboratory: Eurofins/Lancaster Laboratory	
Date Validated: 7/20/2018	Laboratory Project Number: 1179714	
Sample Start-End Date: 1/22/2010	Laboratory Report Date: 2/3/2010	
Parameters Validated: Polychlorinated biphenyls (PCBs) by EPA SW-846 3550B/8082A - solid matrix Volatile Organic Compounds by EPA SW-846 5035/8260C – soil matrix Percent Solids by SM 2540 G		
Samples Validated (All Grab Soil): NY-MW-2(1.0-1.5), LLI # 5890060 NY-MW-2(1.7-2.2), LLI # 5890061 NY-MW-1(0.8-1.3), LLI # 5890062 NY-MW-1(1.6-2.1), LLI # 5890063 NY-MW-4(0.8-1.3), LLI # 5890064 NY-MW-4(1.7-2.2), LLI # 5890065 NY-MW-3(0.4-0.9) Unspiked, LLI # 5890066 NY-MW-3(0.4-0.9) Matrix Spike, LLI # 5890067 NY-MW-3(0.4-0.9) Matrix Spike Dup, LLI # 5890068 NY-MW-3(1.5-2.0), LLI # 5890069 NY-MW-X, LLI # 5890070 Trip_Blank Soil Sample, LLI # 5890071		
VALIDATION CRITERIA CHECK		
Validation Flags Applicable to this Review: U The analyte was analyzed for, but not detected above the reported sample quantitation limit. J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. J+ Result is estimated quantity but the result may be biased high. J- Result is estimated quantity but the result may be biased low. UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. NJ The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration. B The analyte was detected in the method, field, and/or trip blank. R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.		
1. Were all the analyses requested for the samples submitted with each COC completed by the lab?	Yes X	No
Comments:		
2. Did the laboratory identify any non-conformances related to the analytical result?	Yes	No X
Comments:		

3.	Were sample Chain-of-Custody forms complete?	Yes X	No
Comments:			
4.	Were samples received in good condition and at the appropriate temperature?	Yes X	No
Comments: The condition of samples when received at the laboratory was not document in the lab report. Since samples were received by the laboratory on the same date as sample collection, it is assumed that samples were at the appropriate temperature.			
5.	Were sample holding times met?	Yes X	No
Comments:			
6.	Were correct concentration units reported?	Yes X	No
Comments: Results for all soil samples were reported in units of micrograms per kilogram (ug/kg).			
7.	Were detections found in laboratory blank samples?	Yes	No X
Comments:			
8.	Were detections found in field blank, equipment rinse blank, and/or trip blank samples?	NA	Yes No X
Comments: One trip blank, Trip_Blank Soil Sample, was submitted with this sample delivery group (SDG). There were no target analytes detected in the trip blank.			
9.	Were instrument calibrations within method criteria?	NA X	Yes No
Comments: Not Applicable, Level 2 data validation.			

10. Were surrogate recoveries within control limits?	Yes	No X
Comments: VOCs: The percent recovery (%R) for the VOC surrogate dibromofluoromethane was below the laboratory's in-house control limits of 71-114% in the samples NY-MW-3(0.4-0.9) Unspiked, NY-MW-3(0.4-0.9) Matrix Spike, and NY-MW-3(0.4-0.9) Matrix Spike Dup. Neither the 2014 National Functional Guidelines (NFGs) for Superfund Organic Methods Data Review or the Delaware Department of Natural Resources (DNREC) Standard Operating Procedures for Chemical Analytical Programs Under the Hazardous Substances Cleanup Act (SOPCAP, Feb. 26, 2015) include criteria for evaluation of this surrogate. Therefore, no data were qualified. PCBs: Recoveries of the surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCX) exceeded the NFG control limits, but were <200%, in the sample NY-MW-4(1.7-2.2) (DCB = 193 %R, TCX = 164 %R). Detected results for Aroclors in these samples were qualified as J+ (estimated with a high bias). Reason code: SUR Surrogate recovery was 0% for DCB in sample NY-MW-4(0.8-1.3). The surrogate was diluted out, so data qualification was not required for this sample. The %R for DCB exceeded the NFG control limits in the MS (160%) and MSD (155%). Data were not qualified based on surrogate spike recoveries for the MS/MSD analysis.		
11. Were laboratory control sample(s) (LCS/LCSD) sample recoveries within control limits?	Yes X	No
Comments:		
12. Were matrix spike (MS/MSD) recoveries within control limits?	NA	Yes No X
Comments: The sample NY-MW-3(0.4-0.9) was analyzed as the site-specific MS/MSD. VOCs: All %Rs were within control limits for analytes listed in the 2014 NFGs. The %R for bromomethane exceeded the laboratory's in-house control limits of 42-168% in the MS (331 %R) and MSD (289 %R). The %R for chloroethane exceeded the laboratory's in-house control limits of 39-152% in the MS (276 %R) and MSD (274 %R). Since the 2014 NFGs did not include criteria for these analytes, no data were qualified. PCBs: The %Rs for Aroclor 1260 were outside the control limits of 29-135% published in the 2014 NFGs in the MSD (-30%). However, the concentration of Aroclor 1260 in the parent sample was greater than four times the spike concentration added. Therefore, the MS/MSD spike recoveries were determined to be not meaningful and no data were qualified.		
13. Were RPDs within control limits?	Yes X	No
Comments: The relative percent difference (RPD) for the recoveries of Aroclor 1260 (29) in the MS/MSD was outside the control limits of 0-20 published in the 2014 NFGs. However, the concentration of Aroclor 1260 in the parent sample was greater than four times the spike concentration added. Therefore, the MS/MSD spike recoveries were determined to be not meaningful and no data were qualified.		

14. Were dilutions required on any samples?		Yes X	No
Comments: VOCs: Soil samples were field-preserved in methanol, resulting in dilution factors (DFs) ranging from 47.80X to 98.33 X for the initial analysis for all samples. Four samples were re-analyzed at an additional 10-fold dilution due to high concentrations of target analytes: NY-MW-2(1.0-1.5) (DF = 492.61), NY-MW-4(0.8-1.3) (DF = 919.96), NY-MW-4(1.7-2.2) (DF = 490.20), and NY-MW-2(1.7-2.2) (DF = 983.28). PCBs: Eleven samples required dilution prior to analysis, with dilution factors ranging from 5X to 500X. Sample reporting limits were adjusted accordingly. No data were qualified.			
15. Were Tentatively Identified Compounds (TIC) present?	NA X	Yes	No
Comments: TIC not requested.			
16. Were organic system performance criteria met?	NA X	Yes	No
Comments: Not Applicable, Level II data validation.			
17. Were GC/MS internal standards within method criteria?	NA X	Yes	No
Comments: Not Applicable, Level II data validation.			
18. Were inorganic system performance criteria met?	NA X	Yes	No
Comments:			
19. Were blind field duplicates collected? If so, discuss the precision (RPD) of the results.		Yes X	No
Duplicate Sample ID	Primary Sample No.		
NY-MW-X	NY-MW-3(1.5-2.0)		
Comments: VOCs: Trichloroethene was detected in the parent sample and field duplicate. The RPD was within the +/-50% criteria for soil samples. No data were qualified based on the field duplicate results for this pair. PCBs: Aroclor 1260 was detected in the parent sample and field duplicate. The RPD was within the +/-50% criteria for soil samples. No data were qualified based on the field duplicate results for this pair.			
20. Were at least 10 percent of the hard copy results compared to the Electronic Data Deliverable Results?		Yes X	No Initials KEF
Comments:			
21. Other?		Yes	No X
Comments: All samples were validated according to the USEPA 2014 NFGs and DNREC SOPCAP. All data are considered usable as qualified. No data have been rejected.			

PRECISION, ACCURACY, METHOD COMPLIANCE AND COMPLETENESS ASSESSMENT			
Precision:	Acceptable X	Unacceptable	Initials JET
Comments:			
Sensitivity:	Acceptable X	Unacceptable	Initials JET
Comments:			
Accuracy:	Acceptable X	Unacceptable	Initials JET
Comments:			
Representativeness:	Acceptable X	Unacceptable	Initials JET
Comments:			
Method Compliance:	Acceptable X	Unacceptable	Initials JET
Comments:			
Completeness:	Acceptable X	Unacceptable	Initials JET
Comments:			